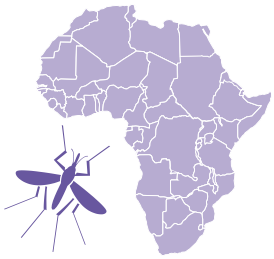
Malaria *and* Pregnancy



Pathways to Success

In the past several years, research has pointed to effective strategies to combat malaria in pregnancy by administering new treatment regimens. These approaches have been particularly successful in Malawi, where in 1993 the government adopted a policy of treating pregnant women with intermittent doses of sulfadoxine-pyrimethamine (SP). Action in this area has been crucial, as rates of malaria and related infant mortality are very high in Malawi. National policy stipulates that women receive an initial dose of SP as part of their first prenatal visit to the hospital at 13 weeks of pregnancy and a second dose during their follow-up visit between 28-34 weeks.

Kenya adopted a similar policy in 1998. Results from studies there also hold great promise, indicating reductions in maternal anemia, placental malaria, and low birthweight babies (and in turn lower rates of infant mortality) following preventive treatment with SP. Two successful interventions in Malawi are summarized below, and form a model for treatment approaches that can be adapted in many other areas and countries throughout Africa.

1. Stephen J. Rogerson et al. "Intermittent sulfadoxine-pyrimethamine in pregnancy: Effectiveness against malaria morbidity in Blantyre, Malawi, in 1997-99." *Transactions of the Royal Society of Tropical Medicine and Hygiene.* Vol. 94, no. 5. 2000.

Success in reducing malaria infection and improving the health of both mother and child through the use of sulfadoxine-pyrimethamine (SP) was documented between July 1997-April 1999 at Queen Elizabeth Central Hospital in Blantyre, Malawi. More than 1,000 women who delivered their babies at this large, urban hospital participated in a study to determine the effects of treatment with SP.

The mean age of the women who participated in the study was about 23 years old, and nearly 48 percent were pregnant for the first time. In other words, a large proportion of the women fit the profile of being most at risk for malaria in pregnancy and giving birth to babies with problems such as low birthweight. About 22 percent of the women in the study tested positive for infection with malaria parasites prior to treatment.

National treatment guidelines were unevenly implemented at Queen Elizabeth. As a result, only 30 percent of the women in the study actually received both doses, while about 24 percent did not receive any SP at all. **Yet, even in the face of such low rates of treatment, the effectiveness of SP was evident.** Overall, the women who received two doses had higher hemoglobin levels and lower rates of infection at the time of delivery, with subsequently positive outcomes for their babies.

Specifically, about 41 percent of women who weren't given any SP were anemic and had infected placentas at the time of delivery. This compares to anemia in 29 percent and placental malaria in 27 percent of the women who received two doses. (These figures apply only to the study participants in their first or second pregnancy.) Furthermore, women who received two doses of SP had 20-25 percent fewer low-birthweight babies than women who didn't take SP.

These findings highlight the vast potential for success if Malawi's national policy on SP treatment were more fully implemented. At the same time, it is clear that *not* administering SP can have many negative effects for both mother and child. This example of the efficacy of SP underscores the need for additional resources to combat malaria in pregnancy, and to thereby ensure that women and children receive the best possible protection from this widespread but treatable disease.

2. F.H. Verhoeff et al. "Malaria in pregnancy and its consequences for the infant in rural Malawi." *Annals of Tropical Medicine and Parasitology.* Vol. 93, supplement 1. 1999.

Widespread outbreaks of malaria occur annually in Chikwawa district in southern Malawi. Another serious health concern in this rural area is HIV infection, with 26 percent of pregnant women testing positive for the virus. Between 1993-95, a study was conducted on the links between malaria-induced anemia during pregnancy, HIV infection, and infant health. The study took place at Chikwawa District Hospital, a government-run hospital with free services, and at Montfort Hospital, a fee-based mission facility.

More than 4,100 pregnant women were screened for HIV, malaria infection, and anemia at the time of their first prenatal visit. About 1,500 of the study participants delivered their babies at the hospitals, and were therefore also screened for malaria at the time of delivery. Among women pregnant for the first time, 56 percent of those who were HIV-infected also were infected with malaria parasites, compared to 37 percent of those who were HIV-negative. The presence of HIV also strongly influenced the health of women who had had multiple pregnancies: 24 percent of those with HIV also had malaria, compared to 11 percent of the HIV-negative group.

About 50 percent of the study participants received the full two doses of sulfadoxine-pyrimethamine (SP) during their pregnancies required by national policy. This regimen made the most significant difference with regard to low-birthweight babies. **Among women pregnant for the first time, 34 percent of those who received only one dose of SP had babies with low birthweights, compared to 14 percent of those who received two doses.** SP also helped women who had had multiple pregnancies; 14 percent of those who received one dose had low-birthweight babies, compared to 7 percent of those who received two doses.

In addition, women who were given daily iron-folic acid supplementation at each monthly prenatal visit had significantly lower rates of anemia, particularly as the number of treatments increased. This in turn resulted in far fewer low-birthweight babies. The importance of micronutrient supplementation was clearest among women who had had multiple pregnancies.

These findings indicate the ways that inexpensive, easily administered treatments can vastly improve the health of mothers and children. They also underscore the importance of increasing resources to combat both malaria and HIV, particularly among pregnant women. Even though Malawi's national policy on SP treatment was unevenly implemented, it benefited many women. In the future, rural areas such as Chikwawa will benefit from efforts to make SP treatment more widely available and to educate women about the risks of malaria, particularly when they are young and having their first pregnancy. As a first step in this direction, the Malawian Ministry of Education, the Swedish International Development Agency, and the United Nations Children's Fund have teamed up to improve adolescent health awareness in rural areas of Malawi.

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